

# Ironwood Forest

## National Monument

Manager's Annual Report  
FY 2014

Manager's Annual Report

# 2014



NATIONAL  
CONSERVATION  
LANDS

Arizona



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Figure 1 Sunrise at Ragged Top

# 1

## Ironwood Forest Profile

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### Designating Authority

Designating Authority: Proclamation 7320 — Establishment of the Ironwood Forest National Monument

Date of Designation: June 12, 2000

### Acreage

Total Acres in Unit	BLM Acres	Other Fed. Acres	State Acres	Other Acres
188,628	128,756	299 (DOD Withdrawl)	54,741	4,832

### Contact Information

Unit Manager	Phone	E-mail	Mailing Address
Claire Crow	520-258-7242	ccrow@blm.gov	3201 E. Universal Dr. Tucson AZ, 85756

Field Office	District Office	State Office
Tucson Field Office	Gila District	Arizona

### Budget

Total FY14 Budget	Subactivity 1711	Other Subactivities' Contributions	Other Funding
\$624,565	\$567,352	\$57,212	\$0.00



## Ironwood Forest National Monument

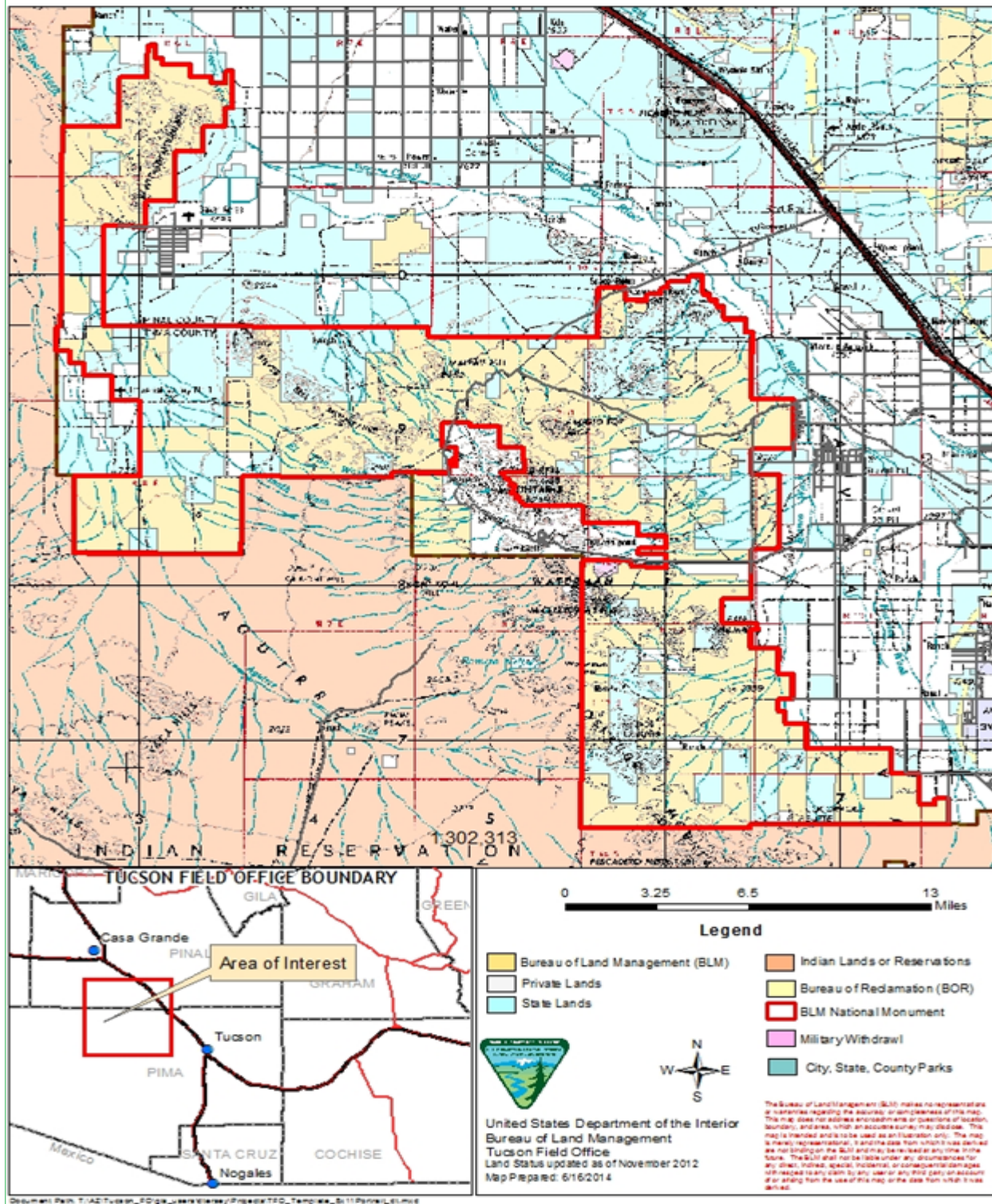


Figure 2 Map of the Ironwood Forest National Monument

## Managing Partners

N/A

## Staffing

Manager—Full time (also manages lands and activities in the north and west parts of the Field Office and some resources staff on the Tucson Field Office table of organization)

Natural Resources Specialist— 80% (also works on lands and activities in the north and west parts of Tucson Field Office)

Outdoor Recreation Planner— 40% (also works on lands and activities in the north and west parts of Tucson Field Office)

Park Ranger (**Vacant since June 30, 2014**)—60% (also works on lands and activities in the north and west parts of Tucson Field Office)

2 Student associates from Arizona Conservation Corps (AZCC) were funded through the Southern Arizona Project to conduct clean-up and restoration of impacts to Monument resources from human- and drug-smuggling activities related to US-Mexico border. One position was filled for 9 months, the second for 11 months.

Other employees of the Tucson Field Office staff work occasionally in the Monument on an as-needed and funds-permitting basis. The Park Ranger spent part of his time involved in UDI-related Southern Arizona Project activities. The two long term AZCC interns worked primarily on border-related UDI issues of trash, road rehab, and fence repair, with occasional cross-training opportunities in recreation, range, natural resources, educational outreach and public contact.

# 2

## Planning and NEPA

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### Status of RMP

The Ironwood Forest National Monument Resource Management Plan was approved on February 19, 2013. This year, the staff completed a Travel Management Plan (TMP) that will guide the implementation of the transportation and travel management decisions that were made in the RMP.

### Status of Activity Plans

The TMP was completed near the end of FY 2014. It prioritizes implementation of travel management standards in signage, road and primitive road maintenance and improvements, route restrictions and closures.

### Status of RMP Implementation Strategy

Monument staff completed the RMP Implementation Strategy in the fourth quarter, with input from partners, and facilitated by BLM Washington Office NLCS staff. Key points of the strategy include: building on existing relationships and developing new partnerships; an identified need for scientific research, monitoring, and educational outreach; road maintenance and acquisition of legal access.



Figure 3 BLM Washington Office staff being briefed on the management of soils which support sensitive cultural and natural resources.

### Key NEPA Actions and/or Project Authorizations

NEPA review was completed in FY 2014 for six projects within the IFNM.

**EA Acquisition of Waterman Parcel:** This Environmental Assessment was initiated in FY 2013 and analyzed the effects of acquiring, and incorporating into the Monument, 358 acres of private lands located within the Monument boundary.

**EA Ironwood Forest National Monument Travel Management Plan:** This Environmental Assessment was initiated in FY 2013, and analyzes the impacts of implementing the route designations made concurrently with the IFNM Resource Management Plan (2013). The TMP implements the route designations through a signage plan, road and primitive road maintenance, barriers and signage for route restrictions and closures.

**CX Silver Bell Mining GPS Tower Right-of-Way:** Authorizes a GPS base station.

**CX Sasco Road Right-of-Way:** Authorizes road right-of-way.

**DNA Friends of Ironwood SRP:** This Special Recreation Permit authorizes the Friends of Ironwood Forest to hold special events on the Monument.

**DNA Arizona Archaeological and Historical Society Educational Field Trips:** This Special Recreation Permit authorizes the AAHS to conduct educational field trips on the Monument.



### General Accomplishments

**National Public Lands Day** In coordination with the Friends of Ironwood Forest (FIF), 3 projects were included in the IFNM event: treating invasive buffelgrass, rehabilitating vehicle tracks, and replacing vehicle barriers in washes along the road. After the morning's work, FIF provided lunch and other partners (Tucson Soaring Club, Wilderness Coalition) provided presentations on wilderness stewardship and on the aviation history of the area.



Figure 5 Volunteers installing replacement vehicle barriers in a desert wash on National Public Lands Day

**Fence work** was completed along the boundary with the Tohono O'odham Nation, and around a National Register of Historic Places site, near the Sawtooth Mountains. The Tohono O'odham Nation's youth crew assisted with the project. The fence work will protect cultural resources by redirecting vehicle traffic away from driving on the historic site.

**Operation ROAM.** Rangers from throughout the BLM participate in operation ROAM (Reclaim Our Arizona Monuments) several times each year to reduce illegal border smuggling activities and to provide safety for employees and volunteers completing resource restoration activities within the Ironwood Forest National Monument.

An estimated **47,000 visitors** enjoyed the Monument during the 2014 fiscal year.

### Current Areas of Focus

The major focus of work this year was to complete the Travel Management Plan and the Implementation Strategy for the Monument.

Drug- and human-smuggling activities impact the resources of the Monument through cross-country driving and the creation of foot trails, along with the trash left behind by the smugglers and their scouts. There is also an associated risk to employees doing field work as many of the drug smugglers and scouts are armed and drive recklessly on rough back roads. Operation ROAM is being used to combat the threats to employee safety and provide a law enforcement presence in high traffic areas, allowing crews to safely accomplish clean-up and reclamation of disturbed areas.

The United States Air Force initiated relinquishment of Titan II Missile Site 12, located in Avra Valley within the IFNM's boundary, back to BLM beginning in FY12. The process is continuing through FY 14, with the possibility of utilizing the site as a dispersed recreation site with an interpretive element describing the history and function of the site.

There were no significant disturbances to the Monument this year. There were several incidents of cross-country driving by smugglers; the tracks were rehabilitated by interns and volunteers.

## **Education, Outreach, and Interpretation**

**Meet the Monument** event held by the Friends of Ironwood Forest on Nov 15, 2013 familiarized nearly 300 area residents with the Monument in their own backyard. The event included the following presentations and activities:

- Bird walk with Mary Ellen Flynn (Tucson Audubon Society)
- Desert Photography with Murray Bolesta (Cactus Huggers Photography)
- 5k hike with Gary Borax, Jim Phillips, and Ries Lindley (Arizona Native Plant Society) - Botany
- 8 to 11 k hike with Drew Milsom and the University of Arizona Ramblers (Walking Club)
- Desert Photography walkabout with Allan Morgan (National Geographic)
- Trees of the Desert with Frank Rose, (Arizona Native Plant Society)
- Cacti of the Ironwood Forest National Monument with Bob Schmazel (environmental consultant)
- Desert Reptiles and Amphibians with Ed Moll (Tucson Herpetological Society)
- Archaeology of the Ironwood Forest Monument with Dr.s Paul & Suzy Fish (University of Arizona)
- Bighorn Sheep of the Ironwood Forest with Joe Sheehey (Arizona Desert Bighorn Sheep Society)
- Guided naturalist walkabout with Royce Ballinger (University of Nebraska)
- Desert photography walkabout with Allan Morgan (National Geographic)

- Lord's Ranch and Ironwood Forest history with Sally Ziegler (Lord's Ranch)
- Yaqui relationship to the desert with Felipe Molina (Pasqua Yaqui Tribe)
- Hiking the Ironwood Forest with Gary Borax (Dove Mountain Hikers)
- Yoeme Deer Dancers (Pasqua Yaqui Tribe)

**Hike the Monument** consisted of three natural history hikes led by Friends of Ironwood Forest: a moderate-to-difficult adventure hike to Wolcott Saddle; a family-oriented nature hike to Ragged Top Mountain around the base of Ragged Top Mountain, guided by local experts in herpetology, botany and nature photography; and a moderate hike in the Waterman Mountains with a botanist and the IFNM Manager to view elephant trees (only one species resides in the U.S.).

**Restoration Site.** The Arizona Native Plant Society Tucson Chapter (ANPS) has adopted and is actively working on restoration of an old decorative rock mill site within the Monument. This site is within the Waterman Vegetation Habitat Management Area, which was designated in the RMP to protect the endangered Nichol Turk's head cactus. At the beginning of a service project at the site, ANPS provided a presentation demonstrating restoration techniques and the results of their work restoring the 18 -acre area back to native Sonoran desert vegetation.

**Pima Community College Earth Day.** The IFNM park ranger and 2 Arizona Conservation Corps interns provided information on resources and recreational use of the IFNM, as well as career opportunities in the BLM, at the campus Earth Day celebration.

## Partnerships

**Friends of Ironwood Forest:** This year, FIF transitioned to an all-volunteer organization, and the work formerly accomplished by the Executive Director was distributed among the Board Members. FIF was an active partner in spite of this transition, coordinating several successful educational and service events (Meet the Monument, Beat Back Buffelgrass Day, Hike the Monument, National Public Lands Day) and contributing input to the Implementation Strategy and the Travel Management Plan. FIF has become more involved in buffelgrass removal on the IFNM, and worked together with BLM and Arizona Native Plant Society Tucson Chapter on a strategic approach to coordinating control efforts.

**Arizona Native Plant Society Tucson Chapter:** ANPS have been very active in the restoration of an old decorative rock mill site within the Monument. They have also organized volunteer projects monitoring and removing invasive buffelgrass, and worked together with BLM and FIF on a strategic approach to coordinating control efforts.

## Volunteers

Arizona Native Plant Society, Tucson Chapter (AZNPS)—buffelgrass control treatments including

manual removal and herbicide application, especially on dispersed remote sites; Bermuda grass control; restoration including collecting and planting native seed, erosion control, and monitoring results; agave investigation; volunteer coordination.

Volunteers, under the supervision of a certified pesticide applicator, treated and monitored about 30 acres of the invasive grass species buffelgrass within the Waterman Mountain Vegetation Management Area, which was set up to protect an Endangered species of cactus. These volunteers donated 1064 hours during the fiscal year.

Friends of Ironwood Forest recruited and coordinated volunteers to present several outreach and education events this year (described above), and service projects including control of invasive buffelgrass, roadway cleanup and installation of signs and barriers to prevent cross-country driving. They coordinated 550 hours of volunteer time.

### **Land (or Interests in Land) Acquisitions**

The BLM acquired 358 acres of land within the Monument with the assistance of Land and Water Conservation Funds and the Arizona Land and Water Trust. The majority of the acreage was patented mining claims in the Waterman Mountains in habitat for the Endangered Nichol Turks-head cactus, and containing a cave which serves as a major bat roost. There are currently no other known cave or karst resources on the Monument.



Figure 4 Nichol Turks-head cactus blooming



# 4

## Science

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### Science

The exceptional quality and diversity of the desert habitats contained within the IFNM - along with its proximity to major research institutions including the University of Arizona- make the Monument an excellent location for multidisciplinary research. IN FY 2014, the following research efforts took place to improve public and BLM understanding of Monument resources.

Kelsey Yule from the University of Arizona is investigating “Species interactions involving the common Sonoran Desert parasitic plant, desert mistletoe”. The study began in FY 13 and will conclude in FY 17. Key words for that study are: Sonoran riparian and scrub communities, *Phoradendron californicum*, *Prosopis*, *Parkinsonia*, *Acacia*, *Olneya*, multiple mutualistic partners, Ironwood Forest National Monument.

Matt Rowe from Michigan State University included the Monument in a sampling trip this summer for his investigation into the neurology of *Hadrurus arizonensis* (desert hairy scorpion).

Monica Ge of the University of Arizona is testing a hypothesized genetic basis of the female-biased sex ratio of gynodioecious population of *Bursera microphylla* found on Waterman Mountain. The project began in FY 14 and will conclude in FY 18.

Anthony Baniaga, PhD candidate at the University of Arizona, is looking at the regeneration of *Selaginella arizonaica* post-fire in the Ironwood Forest National Monument. A small lightning-caused fire in July 2011 provides a unique opportunity to document growth rates, which are underdocumented for all species in the genus. His study was scheduled to conclude at the end of calendar year 2014.

Abigail Tobin of Northern Arizona University is investigating the effects of bat gates on bats at abandoned mines in the Tucson Field Office, including the IFNM, through May 2016. The study includes testing mock gates of varied designs, in order to better inform future management of cave-dwelling bat species.

Long term monitoring of the population dynamics of Nichol Turk’s Head Cactus has been taking place on the Monument for over ten years, and is planned to continue. The Nichol Turk’s Head Cactus Working Group maintains a website with updated information on their activities.

### Future Science Opportunities

During geological surveys of the Monument, an area with Mesozoic formations was identified. In other NLCS units within the Tucson Field Office, those same formations have been shown to contain vertebrate fossils. The Museum of the Southwest is interested in conducting surveys of those formations on the IFNM for fossils, but has not been able to secure funding for the project. This project has been submitted in BLM funding proposals.

### **Status of the Unit's Science Plan**

IFNM staff will begin working on the IFNM Science Plan in FY 15. We are currently working with various researchers to learn more about the Sonoran desert ecosystem through networking and internet contacts.



Figure 5 Sonoran Desert Tortoise

# 5

## Resources, Objects, Values, and Stressors

### Drought-adapted Vegetation

The landscape of the Ironwood Forest National Monument is swathed with the rich, drought adapted vegetation of the Sonoran Desert. Management objectives are to maintain viable natural populations of ironwood, palo verde, saguaros, and other drought-adapted vegetation within the monument. Protection goal is to prevent avoidable loss of unique vegetation communities on Ragged Top and other rugged mountain ranges.

#### Drought-adapted Vegetation Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

#### Drought-adapted Vegetation Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	128,756	128,756	128,756

### Stressors Affecting Drought-adapted Vegetation

The vegetation of the Sonoran Desert is adapted to drought so any effects of climate change are not currently noticeable. The major stressor is the invasion of buffelgrass into the Monument. Buffelgrass is an introduced exotic grass from Africa that is fire-adapted and burns at temperatures well exceeding the maximum temperature that the native Sonoran desert vegetation is capable of withstanding. Fire can be devastating to the desert vegetation and can eliminate most leguminous trees and cacti from the landscape.

## Objects of Scientific Interest

The Monument contains objects of scientific interest throughout its desert environment. Stands of ironwood, palo verde, and saguaro blanket the Monument floor beneath the rugged mountain ranges, including the Silver Bell Mountains. Ragged Top Mountain is a biological and geological crown jewel amid the depositional plains in the Monument.

### Objects of Scientific Interest Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

### Objects of Scientific Interest Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	128,756	128,756	128,756

## Stressors Affecting Objects of Scientific Interest

The biggest stressor to the Monument's objects of scientific interest is the invasion of introduced buffelgrass. This species is fire-adapted and spreads rapidly within the Sonoran desert environment. The introduction of a fire regime into the desert results in the destruction of the native vegetation which is not adapted to fire .



Figure 6. Volunteer removing invasive exotic buffelgrass

## Rugged Mountain Ranges

Protection goals are to maintain natural characteristics, processes, and scenic and wildlife



values of geologic resources.

#### Rugged Mountain Ranges Status and Trend Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	128,756	128,756	128,756

#### Rugged Mountain Ranges Inventory, Assessment, Monitoring Table

Status of Resource, Object, or Value	Trend
Good	Stable.

### Stressors Affecting Rugged Mountain Ranges

There are currently no stressors affecting this resource.



Figure 7 Sawtooth Mountains

## Quintessential View of the Sonoran Desert with Ancient Legume and Cactus Forests

Protection goal is to maintain visual quality of landscapes from important viewing areas.

### View of the Sonoran Desert with Ancient Legume and Cactus Forests Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Slightly declining. Silver Bell copper mine is expanding and raising some of its material dumps to higher levels, making the mining operations more visible from areas where it was not previously visible.

### View of the Sonoran Desert with Ancient Legume and Cactus Forests Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	128,756	128,756	128,756

## Stressors Affecting Quintessential View with Ancient Legume and Cactus Forests

Silver Bell copper mine is expanding and raising some of its material dumps to higher levels, making the mining operations more visible from areas where it was not previously visible.



Figure 8 Sonoran Desert Landscape

## Ironwood Trees

The Monument contains unusually dense stands of ironwood trees, and stands of unusually large ironwood trees. Protection goals are to maintain viable natural populations of ironwood and prevent increased mortality of ironwood stands.

### Ironwood Trees Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

### Ironwood Trees Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	128,756	128,756	128,756

## Stressors Affecting Ironwood Trees

The current long term drought has had some effect on the vigor and reproductive capacity of the ironwood trees. These trees have evolved to survive this type of drought, but do show some signs stress.



Figure 9 Ironwood tree in bloom

## Threatened, Endangered, and Special Status Species

The Monument is home to species federally listed as threatened or endangered, including the Nichols Turk's head cactus and the lesser long-nosed bat. The desert bighorn sheep in the Monument may be the last viable population indigenous to the Tucson basin and is a special

status species in Arizona. Protection goals for these objects are to maintain a natural range of variation in vegetation communities to support rare species, and to prevent avoidable loss of special status species.

#### Threatened, Endangered, and Special Status Species Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

#### Threatened, Endangered, and Special Status Species Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	128,756	128,756	128,756

### Stressors Affecting Threatened, Endangered and Special Status Species

The biggest stressor to the Monument's Threatened, Endangered, and Special Status Species is the invasion of the introduced grass species buffelgrass. This species is fire-adapted and spreads rapidly within the Sonoran desert environment. The introduction of a fire regime into the desert results in the destruction of the native vegetation which is not adapted to fire. Illegal cross-country travel poses an additional threat to the endangered Nichol Turk's head cactus.



Figure 10 Nichol Turks-head cactus



Figure 4 Desert Bighorn Sheep at wildlife water development

### Rock Art Sites and Archaeological Objects of Scientific Interest

The area holds abundant rock art sites and other archaeological objects of scientific interest. Humans have inhabited the area for more than 5,000 years. Protection goals for these objects



are to reduce threats and resolve conflicts from natural or human-caused deterioration of rock art and other prehistoric sites, Archeological Districts on the National Register of Historic Places, artifacts, and remnants of Mission Santa Ana.

#### Rock Art Sites and Archaeological Objects of Scientific Interest Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

#### Rock Art Sites and Archaeological Objects of Scientific Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
128,756	15,536 (12.1%)	128,756	128,756

### Stressors Affecting Rock Art Sites and Archaeological Objects

There are some impacts to known archaeological sites from soil erosion and some damage to rock art sites from humans. These impacts are being monitored at 5 sites annually, plus additional sites opportunistically, and actions to prevent further degradation are ongoing.



Figure 11 Prehistoric arrow shaft straightner.

# 6

## Summary of Performance Measure

Overall the objects of the Monument are in stable condition with the only threat-level risk the impacts of invasive plants on the drought-adapted vegetation. There are some human impacts from smuggling activities, and some impacts from recreational activities. There is an impact on the vegetation and habitat of the Monument from an invasive grass that is bringing fire into a non-fire adapted ecosystem. All of the impacts are being monitored and addressed by Monument staff.

Summary Table*		
Resource, Object, or Value	Status	Trend
Drought-adapted vegetation	Good, some threat from invasive plant species, treatment is keeping the threat in check.	Stable
Rugged mountain ranges	Good, will not change	Stable
Quintessential view of the Sonoran Desert	Good, although some VRM impact from adjacent mines	Stable
Ironwood trees	Stable	Stable
Habitat for threatened, endangered, and rare wildlife and vegetative species.	Good, although some effects are being seen from persistent drought.	Stable
Archaeological objects of scientific Interest	Good	Stable

\*This table is a synthesis of the individual object/value status tables in the "Objects, Values, and Stressors" section.

# 7

## Manager's Letter

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The Ironwood Forest National Monument Travel Management Plan was completed at the end of the fiscal year. The TMP strategically prioritizes and guides the implementation of the travel route designations made concurrently with the IFNM Resource Management Plan and Record of Decision (2013), and the RMP/ROD decisions related to transportation and travel management. An Implementation Strategy for the RMP decisions was also completed during 2014. This year's planning efforts set the stage for initiating projects focused on protecting the resources of the Monument while providing appropriate access. The initial actions will emphasize building existing relationships and developing new partnerships; coordinating scientific research and monitoring to inform adaptive management; and completing road maintenance and restoration projects. The IFNM staff is sincerely appreciative of the dedication and earnestness of the volunteers, neighbors and partners who care deeply about the IFNM.

Claire Crow  
Monument Manager



**NATIONAL  
CONSERVATION  
LANDS**

# **Ironwood Forest**

## **National Monument**

Bureau of Land Management

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